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Yoojin Kook

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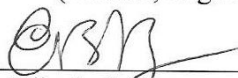
Mental Health and Resource Utilization among Underrepresented Students Transitioning to  
College

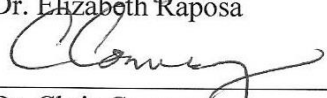
A thesis submitted in partial fulfillment of the requirement  
for the degree of Bachelor of Science in the Department of Neuroscience from  
The College of William and Mary

by

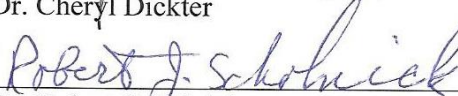
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Accepted for Honors  
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### Abstract

Underrepresented college students – including first-generation college students, students from lower-income backgrounds, and minority students – have lower rates of college completion (Fitzgerald & Delaney, 2002; Engle & Tinto, 2008; Choy, 2001). One set of factors that could play an important role in lower rates of college persistence for these students might involve higher rates of emotional distress, coupled with greater barriers to utilizing mental healthcare resources on campus (Andrews & Wilding, 2004; Eisenberg, Golberstein, & Hunt, 2009). The current study followed 59 underrepresented students (UR; 53 racial/ethnic minority; 12 immigrants; 20 first-generation; 23 low-income) and 62 non-underrepresented students (NR) during their first semester at a medium-sized, public southeastern university to compare rates of mental health problems, as well as stigma toward and utilization of mental health resources. Analyses examined 1) associated rates of emotional distress among UR upon entering college, and how these rates of emotional distress change over time, and 2) the level of perceived barriers to utilization of mental health resources, as well as actual utilization of mental health resources. At baseline, both groups reported similar prevalence of psychiatric disorders, with 30% of NR and 19% of UR reporting at least one type of psychiatric diagnosis ( $p = .18$ ). While depressive symptoms and stress levels increased for both groups throughout the semester, UR had a significantly higher level of depressive symptoms during follow up and marginally higher level of perceived stress during baseline ( $p = .06$ ). Contrary to the hypotheses, both groups' perceived need for mental health resources significantly decreased across the semester, while a trend of decrease for the perceived stigma of others toward such resources ( $p = .06$ ) was also observed for both groups. The two groups reported different expectations about receiving support, as well as different sources for support during college. While UR were equally likely as NR to report planning to utilize counseling center services at baseline ( $p = .37$ ), UR were less likely to report the same plan at follow up. As for the actual resource utilization, UR had a trend of less

utilization of therapy or counseling services in the past year, compared to NR, when asked during the baseline ( $p = .09$ ). At follow up, UR reported that they received no social support at a marginally higher rate than NR ( $p = .06$ ). Results have important implications for understanding risk factors for emotional distress in underrepresented students as they transition to college.

### **Acknowledgement**

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I dedicate this study to my “uncle”, Mr. Jack Kent Cooke, whose foundation has been supporting me financially, academically, socially and emotionally, for the past 7 years, as well as my “cousins”, other Jack Kent Cooke scholars, who inspire me everyday to “Dream Big, Work Hard and Achieve”, to make this world a better place together.

Last but not least, I would like to thank my family - Mom, Dad, John and David - and friends for their tremendous support throughout college and this research. I would not be where I am now without their unconditional love and support in my pursuits and growth.

**Mental health and resource utilization among underrepresented students transitioning to college**

As the higher unemployment rates of individuals who have not completed college suggest (Bureau of Labor Statistics, 2017), a baccalaureate degree is an essential requirement for most employers in the U.S. (Arthor, 2010). As a result, a baccalaureate degree often serves as a primary goal for racial/ethnic minorities and other underserved populations that are striving to improve their financial situations and socioeconomic statuses (Conway, 2010; Suárez-Orozco, Suárez-Orozco, & Todorova, 2009). With more students, from these underrepresented groups, seeking a college education recently, there has been an increase of total first-generation college students at four-year institutions (43% in 1989 to 57.7% in 2010; Nunez & Cuccaro-Alamin, 1998; National Center for Education Statistics, 2016), as well as an increase of first-year students living near or below the poverty level (38% in 2010 and 42% in 2008; Institute for Higher Education Policy, 2011). Racial and ethnic diversity has been increasing relative to previous years as well; in 2008, racial or ethnic minority students comprised 37% of all undergraduate students enrolled in degree-granting U.S. institutions (13.9% black; 12.9% Hispanic, 6.8% Asian/Pacific Islander, 1.1% American Indian/Alaska Native students, and 2.2% nonresident international or immigrant students; Aud, Fox & Kewal, & Ramani, 2010) compared to only 17.8% of the undergraduate population in 1976 (10% black; 3.7% Hispanic, 1.8% Asian/Pacific Islander, 0.7% American Indian/Alaska Native students, and 1.5% nonresident international or immigrant students; Aud, Fox & Kewal, & Ramani, 2010).

Despite growing enrollment in higher education, underrepresented college students, including those who identify as first-generation, ethnic minority, and low-income students, have higher dropout rates and lower graduation rates. First-generation, low-income students are about four times more likely to drop out after their first year, with only 25% of first-generation college students graduating college within six years (Engle & Tinto, 2008; Ishitani 2006). The graduation rate for students from families in

the lowest quartile of family income is 14%, whereas students from families in the top quartile for income have a 60% graduation rate (Kena et al., 2015). College graduation rates vary by race and ethnicity as well: 45.8% of Hispanic and 38% of black/African American students graduate within six years, while 62% of white and 63.2% of Asian American students do (Shapiro et al., 2017).

Moreover, many of these underrepresented students endorse multiple, intersecting identities that can negatively influence their likelihood of succeeding in college. For example, first-generation college students are more likely to be financially independent and encounter more financial stressors while at college than continuing-generation students, and first-generation students also tend to identify as ethnic/racial minorities, non-native English speakers, or as immigrants at higher rates (Bui, 2002; Engle & Tinto, 2008; Horn & Nuñez, 2000). Similarly, ethnic minority students are more likely to struggle with financial difficulties and to rely on federal financial aid to attend college. One study showed that, among full-time undergraduate students, 85% of African American students, 85% of American Indian/Alaska Native students, and 80% of Hispanic students received federal and/or local grants, suggesting that substantial financial need is quite common among ethnic minority college students (Musu-Gillette et al., 2017).

As these data suggest, many underrepresented students identify with multiple previous experiences or backgrounds that tend to be marginalized in primarily white, upper-middle or upper-class college and universities. These complex identities overlap and intersect in ways that can compound difficult college experiences for students, including racial discrimination and feelings of alienation at college, reduced academic preparedness, increased student loan debt, and higher incarceration rates (Museus & Quaye, 2009). For an example, a longitudinal study conducted by the U.S. Department of Education found gaps in 6-year college graduation rates among college students who first entered in 2003-04, those who are both first-generation and low-income (21%), those who are either first-



generation only (31%) or low-income only (37%), and those who are neither (57%; Cahalan et al, 2016). Past studies have also confirmed that intersecting effects of marginalized identities can lead to differential adverse health effects, which are believed to occur through discrimination and structural inequalities (Seng et al, 2012). A better understanding of the complex interplay of factors that influence resilience and attrition among underrepresented college students is therefore crucial in developing successful interventions to address social inequality.

*Mechanisms of lower college retention for underrepresented students*

As noted above, there are a host of reasons why underrepresented students might struggle to complete college at rates similar to their more privileged peers. Many underrepresented college students reside in low-resource communities, attend under-funded primary and secondary schools, and enter college with less academic readiness compared to their counterparts, which may attribute to their academic struggles during college (Rosa, 2006). College readiness is defined as the academic literacy required to be able to perform in college successfully without remedial coursework (Baker, Clay, & Gratama, 2005). Research shows that first generation college students have significantly lower SAT scores and high school GPAs than their counterparts (Grayson, 1997; Riehl, 1994), and the lack of college readiness is an even greater barrier to success for low-income, first-generation students (Engle & Tinto, 2008; Kuh, Kinzie, Buckley, Bridges, & Hayek, 2006). As for racial and ethnic minority students, one survey showed that only 14% of American Indian students, 20% of black students, and 16% of Hispanic students graduate high school college-ready (Greene and Forester, 2003).

While many underrepresented students experience poor academic readiness, their academic literacy may not be the only, or even the major, contributor to their high drop-out rates. Even after accounting for academic readiness, first generation and low-income students are still at a greater risk of academic failure (Engle and Tinto, 2008), with only 15-25% of students, who drop out of college,

leaving due to a specific academic failure (Tinto, 1993). These findings indicate that additional aspects of the college experience are likely key contributors to college attrition in marginalized student groups, and that a better understanding of factors that influence resilience and attrition among these students is crucial in developing successful interventions to address the academic disparity.

Another common challenge faced by many underrepresented college students includes various forms of social exclusion and alienation (Carter, 2006). Underrepresented students, from typically marginalized backgrounds, such as ethnic minority students, international students, or low-income students, tend to report greater levels of social isolation while at college (Hefner and Eisenberg, 2009). Of note, these feelings of alienation are not universal. They appear to be specific to underrepresented students at predominantly white institutions (PWIs). For example, African American students at PWIs report experiences of exclusion, racial discrimination, and alienation (Allen, 1992; Turner, 1994; Feagin, Vera, and Imani, 1996; Negga, Applewhite, and Livingston, 2007; Lindsey et al., 2011). These students often report feeling anxious as a result of being the only or one of the few minorities in a social setting, which often motivates them to seek out the company and support of other African American students (Smedley, Myers, and Harrell, 1993). In contrast, African American students at historically black colleges and universities tend to feel more engaged, connected, accepted, and encouraged (Allen, 1992; Turner, 1994; Feagin, Vera, and Imani, 1996). Individuals with a solo status, those who are the only ones of their social category in a homogenous group, have more negative outcomes for disadvantaged groups than when members of privileged groups experience a solo status. Minority students' distinct backgrounds and negative stereotypes can contribute to lowered performance in a setting where they are underrepresented (Thompson and Sekaquaptewa, 2002). Several other factors also appear to offset feelings of isolation within minority student groups. For example, an inclusive, cohesive and welcoming campus environment marked by high social attachment is positively correlated with college persistence

for ethnic minority and low-income students (Hurtado et al., 1998), and institutional programs that successfully meet the academic, social and cultural needs of diverse students generally appear to be correlated with higher overall retention rates (Myers, 2003).

Decreased sense of belonging and social support among underrepresented college students can in turn influence important emotional and academic outcomes during college (Erickson, McDonald & Elder, 2009, Fruht & WrayLake, 2013; Hurd & Zimmerman, 2014). African American students' perceptions of alienation negatively impact their self-perception of academic and intellectual abilities, as well as their beliefs about how white peers, faculty, and staff perceive their academic abilities (Feagin, Vera, and Imani, 2014). In fact, one study found that stressors associated with an inability to immerse oneself in the university community were linked with the most toxic effects on mental, emotional and academic resilience of minority students (Smedley, Myers, and Harrell, 1993). While African American students report higher minority stress compared to other ethnic minority students, Asian American students report higher imposter syndrome (Cokley et al., 2013). Imposter syndrome, a perception of self as an intellectual fraud (Clance & Imes, 1978), has also been identified as a predictor of depression among minority college students (Austin, Clark, Ross, & Taylor, 2009).

Underrepresented students' financial constraints are another common factor in college attrition. Many underrepresented students attend colleges to increase their social mobility, however, their lower financial status, relative to other students, and the cost of college can have a toll on them, affecting their persistence (St. John, Paulsen, and Starkey, 1996; St. John, Paulsen, and Carter, 2005). Low-income students are more likely than peers from higher socio-economic backgrounds to drop out of college with insufficient grants, a particularly crucial aspect of financial aid (Paulsen & St. John, 2002). Moreover, the ability to pay college tuition is a direct predictor of college persistence and moderates the effect of educational aspirations (Cabrera, Stampen, & Hansen, 1990).

*Underrepresented college students and mental health*

One important, but often overlooked, factor that might contribute to the attrition of underrepresented colleges students involves higher rates of emotional distress. Although little research on the specific mental health concerns of underrepresented students has been conducted, recent studies suggest that rates of emotional distress among college students are quite high and growing, and that underrepresented college students may be even more vulnerable to psychological distress due to the additional stressors they experience as minorities.

Peak onsets of many mental health disorders take place during young adulthood, often within the first 25 years of life (Kessler et al., 2007). As a result, mental illnesses are very common among the general college student population (Blanco et al., 2008). The most prevalent psychiatric problems experienced by college students are anxiety disorders (11.9% of college students; Kessler et al., 2007), major depression (7-9%; Kessler et al., 2007; Eisenberg, Hunt, and Speer, 2013), eating disorders (9.5%; Eisenberg, Nicklett, Roeder, and Kirz, 2011), and suicidal ideation (6.7%; Downs and Eisenberg, 2012). Moreover, even more students experience subclinical symptoms of emotional distress, which can substantially impact their daily lives (Bewick et al, 2008).

During college transitions, many students encounter circumstances and demands that may increase their risk for or exacerbate pre-existing mental disorders (Pedrelli et al., 2015). College students face adult responsibilities (such as part-time jobs, being in a significant relationship, sharing a room or a house with peers) for the first time, on top of their academic demands. While they are still developing the necessary skills and the cognitive and emotional maturity to meet these expectations, students may struggle transitioning to college. Due to their distinct backgrounds, underrepresented students often struggle with additional, unique challenges in postsecondary institutions, which could further compound risks for mental and emotional health problems (Smedley, Myers, and Harrell, 1993). As noted above,

some examples of these added stressors involve a lack of sense of belonging, financial distress, and exposure to micro-aggressions. These stressors appear to affect underrepresented students' mental health most strongly during their transition to college, in their first year (Eisenberg et al., 2007; Hurd, Varner, Caldwell & Zimmerman, 2014; Neville, Heppner, Ji & Thye, 2004; Smedley, Myers & Harrell, 1993).

Consistent with these facts, there is evidence that first-generation (Stebbleton, Soria, and Huesman, 2014) and racial minority (Eisenberg, Hunt and Speer, 2013) students show higher rates of depression relative to their counterparts. There are a few studies on mental illness prevalence among low-income college students, but research has repeatedly demonstrated the toxic effects of poverty on mental health. Children in poverty experience significantly more psychosocial problems than their counterparts (Lipman & Offord, 1997; National Center for Children in Poverty, 2004; Pagani, Boulerice, & Tremblay, 1997), and individuals living in poverty are more likely to be suffering from one or more psychological disorders, including ADHD, conduct disorders, and emotional disorders (Peters & Mullis, 1997; Teachman et al., 1997). Taken together, these findings suggest that underrepresented students are more likely to endorse psychological illnesses.

Mental health problems, in turn, can interfere with academic functioning and contribute to early attrition. Studies show that poor mental health can have an independent effect on dropout rates of college students (Andrews & Wilding, 2004; Eisenberg, Golberstein, & Hunt, 2009), and that millions of Americans identify psychiatric disorders as a barrier to achieving a postsecondary degree (Breslan et al., 2008; Kessler et al., 1995). These psychological symptoms appear to be especially strong predictors of college dropout during the first year of school, perhaps due to poor management of the transition (Eisenberg, Golberstein, & Hunt, 2009; Horn, 1998; Tinto, 2010). Indeed, college transition has been associated with disturbance in appetite and concentration, homesickness, and depression (Beiter et al., 2015).

With respect to the kinds of mental health problems that influence college success, depression and anxiety tend to be the most common predictors of college students' academic underachievement (American College Health Association, 2013; Breslan et al., 2008; Deroma, Leach, & Leverett, 2009; Eisenberg, Golberstein & Hunt, 2009; Hysenbegasi, Hass & Rowland, 2005; Kessler et al., 1995). Depression and anxiety symptoms can deteriorate both cognitive skills and non-cognitive skills. Disruption of these skills that influence students' intelligence, motivation and persistence could stunt students' learning and academic performance (Beck, 1976; Brackney & Karabenick, 1995). In fact, depression has been correlated with lower GPA and higher drop out rates, and anxiety can exacerbate these trends (Eisenberg, Goldberstein, and Hunt, 2009). Other depressive symptoms, including reduced interest in previously enjoyable activities, reduced energy, abnormal amount of sleep, hopelessness, and reduced concentration, could attribute to reduced productivity or time spent on academic activities (DeRoma, Leach and Leverett, 2009; Jaycox et al., 2009). Likewise, students with generalized anxiety may experience helplessness, nervousness, and excessive worrying, which could result in reduced concentration and productivity. Academic activities could trigger physical symptoms of anxiety and panic attacks, and the students may experience dizziness, trembling, difficulty breathing, and increased heart rate. Anxious students may avoid academic activities in order to avoid these symptoms (Owens et al., 2012). Furthermore, depression is associated with poor lifestyle, such as smoking, poor diet, lack of exercise and poor sleeping habits, whereas anxiety is associated with poorer life quality (Beiter et al., 2015).

Despite the extensive research that has been conducted on the interplay between mental health and academic functioning, this topic has not been specifically examined with a special focus on underrepresented college student populations. Most studies on college students' mental health do not directly address these issues within underrepresented student populations (Wentworth & Peterson,

2001), and it is unknown whether issues of emotional distress are linked to other constructs, such as decreased sense of belonging and academic struggles, for underrepresented students. As a result, further research is needed to address the systemic understanding of the relationship between different marginalized social identities, and their effects on mental health, among underrepresented students (Erickson, McDonald & Elder, 2009, Fruht & WrayLake, 2013; Hurd & Zimmerman, 2014).

*Underrepresented students and utilization of mental health resources*

One factor that could contribute to and compound elevated rates of emotional distress for underrepresented students involves barriers to mental health resources. Mental health resources are underutilized among college students in general; only 24% of those diagnosed with depression receive treatment, and low treatment rates are found across all psychiatric disorders (American College Health Association, 2008; Blanco et al., 2008). Underrepresented students appear to utilize mental health and other resources even less often on campus (Stebbleton, Soria, & Huesman, 2014). However, many studies focus primarily on lower utilization among ethnic groups, neglecting other types of minority statuses (Stebbleton, Soria, & Huesman, 2014; Bessaha, 2016). Since certain ethnic groups disproportionately identify as first-generation college students or low-income, studies of particular ethnic groups might not provide full understanding of how underrepresented students generally underutilize mental health resources; however, further study must examine this hypothesis.

The underlying mechanisms of underutilization of mental health resources of underrepresented students are unclear, but several studies point to racial discrimination, perceived stigmatization, cultural differences, financial constraints, and the lack of sense of belonging as contributing barriers to utilization (Frey & Roysircar, 2006; Gloria & Rodriguez, 2000; Woodward, Dwinell, & Arons, 1992; Downs & Eisenberg, 2012). Other factors that could also mediate the poor mental health resource usage in these populations involve a lack of mental health literacy, inconvenience, and lack of time.

Among racial minority college students, perceived racial discrimination is associated with higher levels of perceived stigmatization for utilizing mental health resources (Cheng, Kwan, and Sevig, 2013). Other forms of discrimination, such as classism, also increase the sense of marginalization among underrepresented students, potentially contributing to a lack of resource utilization (Garriott et al, 2017). In addition, language-based discrimination (discrimination that occurs based on how one speaks English with an accent, or doesn't speak English at all) is positively correlated with higher use of informal mental health resources (e.g., talking to friends or family members), while at the same time endorsing negative attitudes toward formal and professional services (Spencer and Chen, 2004).

Other studies emphasize cultural differences among underrepresented student groups as a potential contributor to lower resource utilization as well. First-generation students often identify with norms of interdependence among the working-class, which conflicts with the prevalence of independence or individualistic norms in colleges (Stephens et al., 2012). As a result, first generation students may feel pressured to assimilate to the independent culture to academically flourish in college, possibly to the point of overcompensating, which may reduce their resource utilization (Garriott et al., 2017). These cultural differences can continue to be a problem even when students seek help. For example, minority students' ratings of their counselor's multicultural competence while in therapy directly influenced their satisfaction with counseling (Constantine, 2002), with ratings of counselors' poor multicultural competence often signaling two conflicting cultures and/or culturally-insensitive care.

Financial distress could also limit underrepresented students' access to mental health resources. In a study that examined resource utilization among college students with a lifetime history of suicidal ideation, 44% had not sought treatment (Arria et al., 2011). One-third of those who did not receive treatment reported financial barriers as a reason (Arria et al., 2011). The majority of first-generation undergraduate students, as well as many ethnic minorities and low-income students, attend community



college and for-profit institutions, and many community college counseling centers outsource services or refer students to private providers (Garriott et al, 2017; Edwards, 2015). Students with medical insurance are more likely to seek formal services, whereas those without insurance are more likely to receive informal care from their peers and family (Spencer and Chen, 2004). Financial distress could therefore impede students from obtaining formal mental health care, especially if they come from a low-income family or do not have health insurance.

One recent study attempted to survey these diverse reasons for not utilizing mental health resources amongst first-generation college students (Stebbleton, Krista and Ronald, 2014). These students reported several reasons for not utilizing resources, despite their awareness of their need: inconvenient locations and hours, no knowledge of these resources and services, and the lack of time to receive services (Stebbleton, Krista and Ronald, 2014). While this is the first study to explore the relationship between these factors among first-generation college students, the study was conducted in six large public research institutions, lacking representation of students from different kinds of institutions. Moreover, the study had little representation of diverse ethnic minorities (61.3% White, 16.2% Asian, 9.3% Chicano/Latino, 6.2% African American, 5% other race/unknown, and 2.1% international), and did not analyze students' socioeconomic status, thereby failing to recognize the intersectionality of first-generation college students' overlapping identities. Lastly, while the study examined reasons for a lack of resource utilization and mental health problems in an underrepresented student population, the role of social support and a sense of belonging at college on resource utilization was not explored (Stebbleton, Krista and Ronald, 2014).

Overall, these findings suggest that various barriers, many of which are associated with some marginalized social identities, may influence underrepresented students' attitudes toward mental health resource utilization, creating risk for more mental health problems. While the correlation between

ethnicity and mental health resource utilization is relatively well-studied (Constantine, 2000; Sheu & Sedlacek, 2004), there is a lack of similar studies with a focus on first-generation college students or low-income students, especially in relation to their social identities and sense of belonging. Especially since many of these aspects intersect to influence these students' mental health and resource utilization, a clear understanding of factors that could counteract or exacerbate these barriers is essential to promote underrepresented students' resource utilization behavior.

### *Current study*

The current study was designed to address existing gaps in the literature on factors that influence underrepresented students' mental health and utilization of campus resources. Participants included a sample of underrepresented students (UR; i.e., first-generation, low-income, or racial/ethnic minority) entering their first year at a selective, public southeastern college, as well as a control group of non-underrepresented students (NR). Analyses examined, 1) whether and how underrepresented social identities were associated with rates of emotional distress during the transition to college, and 2) whether underrepresented social identities were associated with perceived barriers to utilization of mental health resources, as well as reduced utilization of mental health resources. These questions were examined longitudinally during the first semester, when students have been shown to struggle most with adjusting to the social and academic demands of college (Kahn & Nauta, 2001), and UR might be at the greatest risk for attrition (Carter, 2006).

These questions were explored using two, complementary methodologies. First, quantitative analyses were run to examine these questions in a larger sample of 121 students. Second, in-depth, semi-structured interviews were conducted with a sub-group of 10 students (5 under-represented and 5 majority culture students) to permit a broader understanding of participants' experiences and enable researchers to explore the meanings attached to particular experiences (Clandinin & Connelly, 1994).

Qualitative analysis 1) helped to interpret quantitative findings, 2) provided narrative accounts of college students' experiences navigating higher education, and 3) captured hard to quantify phenomena (e.g. the nature of supportive relationships that either aid in or challenge resource utilization). The use of multiple methodologies allows for a more contextualized understanding of the interplay between mental health and persistence among underrepresented college students, thereby providing essential information to develop targeted and efficient programs to support underrepresented students and allow equal opportunities for all students.

## **Method**

### *Participants*

For the purposes of our study, underrepresented students were defined as students who are first generation college students, from low-income families, and/or ethnic minorities. There is no universal definition for a "first-generation college student" and the meaning can range from students whose parents do not have any education beyond high school (Chen & Carroll, 2005; Horn & Nunez, 2000; Nunez & Cuccaro-Alamin, 1998; Warburton, Bugarin, & Nunez, 2001, Wang & Castañeda-Sound, 2008) to those whose parents do not have bachelor's degrees, but may have some college, postsecondary certificates, or associate's degrees (Engle and Tinto, 2008). Despite the variability of the definitions, research has found significant differences between continuing-generation college students and first-generation college students, based on both of the definitions (Bui, 2002; Lee et al., 2004). In this study, we defined first-generation college students as students whose parents do not have four-year degrees from a college. Meanwhile, students were considered low-income if their family's "taxable income for the preceding year did not exceed 150% of the poverty level amount" (Office of Postsecondary Education, 2017). For example, if a four-member family's combined annual income is less than \$36,900, they are considered low-income in the contiguous U.S. (Office of Postsecondary

Education, 2017). Finally, ethnic minority students could include students who endorsed any non-white racial or ethnic identity on a checklist (multiple selections were permitted). Using these definitions, fifty-nine underrepresented freshmen (47 female, 12 male) and sixty-two non-underrepresented freshmen (34 female, 28 male) were recruited at a mid-sized, southeastern public university. The vast majority of the sample (95% of participants) were retained from baseline through follow up ( $N = 114$ ; 55 UR and 59 NR).

### *Procedure*

During the first month of their first semester at college, eligible participants were invited to participate in an approximately 40-minute in-person or online baseline session. During this session, participants were informed about the longitudinal nature of the study and asked to provide informed consent. An effort was made to schedule baseline sessions with students 18 years of age or older, in order to obtain their informed consent. For students who were not yet 18 years of age, their parent or legal guardian provided consent through an online consent form.

At the baseline session, students completed questionnaires about demographic characteristics, family background, ethnic and socioeconomic identity, help-seeking beliefs and behaviors, psychosocial and academic functioning, and beliefs about healthcare utilization. Participants were then re-contacted during the last week of their first semester to complete an online follow up survey that assessed change over time in these same constructs. Participants were compensated with either research participation credit for a psychology course (one credit for baseline, .5 credits for follow up) or payment (\$10 for baseline, \$5 for follow up), depending on their preferences. All procedures were approved by the Protection of Human Subjects Committee at the College of William and Mary. Figure 1 illustrates the study design.

*Quantitative Measures*

Ethnic identity. At baseline, participants were encouraged to select as many choices as appropriate from a list of seven racial/ethnic terms: White, African American, American Indian or Alaska Native, Asian American, Native Hawaiian or Pacific Islander, Latino, Other.

Socioeconomic identity. At baseline, socioeconomic identity of the student was assessed using multiple measures to tap into parental education, family income, and subjective social status. Participants were asked about their parents' annual income and highest educational attainment, with six response options for each question (Allen et al., 2008; Thomson, 2011). In addition, participants reported their subjective perceptions of their family's socioeconomic status relative to everyone in the United States, as well as relative to other students attending their college, using the MacArthur Ladders of Subjective SES (Goodman et al., 2001). On the rung, 1 represents the most financially, occupationally, and educationally privileged population where 10 represents the least privileged population. During follow up, participants reported on their subjective social status relative to the college community, using this same measure.

Resource utilization. Participants completed self-report items about their approaches to coping with academic, social, and financial difficulties at college, with a particular focus on the strategies they use to seek help from others (Knapp & Karabenick, 1988). Participants were asked about their access to and utilization of school/campus resources for help with mental health, financial, academic, and other issues, as well as their attitudes towards mental health resources. For baseline and follow up, participants rated their perceived need of help for emotional and mental issues for the past 12 months or semester on a 6-point scale; higher score indicated stronger agreement. They also rated on a 6-point scale how much they agree that if they needed professional help for their mental or emotional health they would know where to go; higher score indicated stronger agreement. In both timepoints, students were also asked to

evaluate others' and their own stigma against mental health treatment out of 6 points; higher score indicated higher level of stigma. Students who reported that they have recently utilized mental and emotional support were asked to rate helpfulness out of 4 points, with a higher score reflecting higher effectiveness. During the follow up, participants rated satisfaction of different aspects of therapy or counseling that they received during the past semester out of 6 points, with a higher score indicating highest satisfaction.

Psychosocial functioning. In order to assess psychosocial constructs closely related to college persistence and academic success, participants completed assessments of perceived stress (Perceived Stress Scale; Cohen & Williamson, 1988), recent depressive symptoms (CES-D; Eaton et al., 2004), and worry (Penn State Worry Questionnaire; Molina, & Borkovec, 1994). Perceived stress questionnaires were scored out of a total possible value of 50, with a higher score indicating higher level of stress. CESD questionnaire responses were added to a total possible score of 100, with a higher score indicating more depressive symptoms. Lastly, Penn Worry questionnaire responses were added to a total possible score of 80, with a higher score indicating higher level of worry.

#### *Qualitative measures*

During the baseline consenting process, participants were informed that they may be selected for an additional, qualitative component of the study. A subsample of 10 of the 121 participants at William and Mary was recruited to participate in this qualitative portion of the study – a semi-structured, individual interview that would further clarify mechanisms that influence underrepresented students' mental health and resource utilization. The qualitative assessment consisted of a semi-structured interview, which was conducted during the second half of the fall semester of participants' first year in college. Five participants were recruited from each group: 5 underrepresented and 5 non-

underrepresented students. Participants who participated in the qualitative interviews were reimbursed with \$10 or one course credit for the 30-45 minute interview.

### *Analytic Procedure*

Independent samples t-tests and chi square were used to compare UR and NR groups on variables measured at a single time point (e.g., expectations about seeking mental health support). A 2x2 mixed model ANOVA was used to analyze the effects of group (UR versus NR) on changes in emotional distress, stigma, and helpfulness of resources over time. Because no significant interactions were found for 2x2 mixed models, T-tests were used to compare groups for each time point.

## **Results**

### *Descriptive Statistics*

The current study examined whether UR experience higher rates of emotional distress and greater barriers to utilizing mental healthcare resources on campus, relative to NR. Participants included 59 UR (53 ethnic minority; 12 with immigrant status; 20 first-generation; 23 low-income status) and 62 NR entering their first year at a mid-sized public southeastern college. Table 1 summarizes demographics of participants.

Among UR, 10.2% of the students identified as White, 33.9% as African American, 18.6% as Asian, 20.3% as Latino, and 16.9% as Others ( $\chi^2(3, N = 121) = 25.18, p < .001$ ). Among URs, English was the primary language spoken at home (66.1%), followed by Spanish (6.8%) or Spanish and English (10.2%). Other languages reported included Chinese (1.7%), Danish (1.7%), Korean (1.7%), Korean and English (3.4%), Malayalam (1.7%), Mongolian (1.7%), Tagalog (1.7%), and Uzbek (1.7%).

The parents of NR were significantly more educated ( $t(119) = 4.96, p < .001$ ), with the majority of NR families having one (41.9%) or both (30.6%) parents with a graduate degree, while it was more common for UR to report parents with no college degree (18.6%), some college (15.3%) or at least one

parent with a bachelor's degree (19.4%). On average, NR's parents earned between \$82,649 – 100,000, whereas parents of UR earned \$57,560-74,280 ( $t(119) = 6.74, p < .001$ ).

The mean self-reported perceived social and economic status of NR at baseline was 4.43 out of 10 ( $SD = 1.63$ ), whereas the mean baseline score was 5.69 for UR ( $SD = 1.89$ ); the group difference was significant ( $t(118) = -3.95, p < 0.001$ ). The follow up differences in perceived status between the groups remained significant; mean score of NR ( $M = 4.29, SD = 1.65$ ) was lower than that of UR ( $M = 5.25, SD = 1.90; t(112) = -2.60, p < 0.05$ ). No significant changes between baseline and follow up ( $F(1, 111) = 1.93, p = .17$ ) and group moderation ( $F(1, 111) = 1.58, p = .21$ ) were observed (Figure 2).

#### *Underrepresented status and emotional well-being*

Analyses revealed that, at baseline, there was no significant difference in prevalence of psychiatric disorders, with 30% of NR and 19% of UR having been diagnosed with at least one psychiatric disorder ( $\chi^2(1, N = 119) = 1.79, p = .18$ ). Table 2 summarizes the prevalence of different kinds of psychiatric disorders by group. The prevalence of depression, anxiety, attention disorder or learning disability, eating disorder, psychosis, personality disorder, and substance abuse disorder were similar between both groups. While none of the NR replied that they did not know if they had any past psychiatric diagnosis, 5.17% of UR did ( $\chi^2(1, N = 119) = 3.23, p = .07$ ).

Analyses of the remaining indicators of psychosocial functioning (i.e., perceived stress, depressive symptoms, and worry) are summarized in Table 3. Whereas a trend of higher baseline perceived stress scores were observed among UR ( $t(119) = -1.91, p = .06$ ), no significant differences between the two groups were found during the follow up ( $t(110) = -1.38, p = .17$ ). Both groups' scores significantly increased throughout the semester ( $F(1, 110) = 431.22, p < .001$ ; Figure 3), but no significant moderation of group status on perceived stress was found ( $F(1, 110) = .08, p = .78$ ).



Depressive symptoms were similar across the two groups at baseline ( $t(114) = -0.79, p = .43$ ), but significantly higher for UR at follow up ( $t(109) = -2.17, p < 0.05$ ). Both groups' scores significantly increased throughout the semester ( $F(1, 104) = 7.86, p < .01$ ; Figure 4), but no significant moderation of the group status on CESD scores was found ( $F(1, 104) = 2.77, p = .10$ ).

Levels of worry, a hallmark feature of some anxiety disorders, were similar between two groups for both baseline ( $t(111) = -1.28, p = 0.20$ ) and follow up ( $t(109) = -1.21, p = .23$ ). No significant change of scores over the semester ( $F(1, 102) = 2.73, p = .10$ ; Figure 5) nor any significant moderation of the group status ( $F(1, 102) = .03, p = .87$ ) was observed.

#### *Underrepresented status and mental health care use*

First, participants were asked what type of social support they expected to utilize if they were experiencing emotional or mental distress (Table 4). At both baseline and follow up, students in both groups identified friends, family members, and professional clinicians as their top three choices for seeking support for emotional wellness, in that order. A trend of higher preference of support groups among NR was observed at follow up; UR (9.09%) expected to utilize support groups more than NR (1.69%) did ( $\chi^2(1, N = 114) = 3.12, p = .08$ ). No significant differences in groups were found in preference for different support types.

Participants were also asked which academic personnel they would prefer to seek emotional support from at their college, if they were experiencing a mental health problem that was affecting their academic performance (Table 5). At baseline, NR and UR responded similarly: 88.71% of NR and 83.05% of UR anticipated that they would see a professional at a counseling center ( $\chi^2(1, N = 121) = .80, p = .37$ ). However, at follow up, UR were less likely to report planning to utilize counseling center services for emotional distress that interfered with academics compared to NR (75% of NR, 53% of UR;  $\chi^2(1, N = 114) = 5.90, p < .05$ ).

In terms of actual utilization, UR were less likely to have used at least one type of professional mental health service prior to entering college (33% of NR versus 22% of UR;  $\chi^2(1, N = 94) = 1.28, p = .26$ ). When asked specifically about behavioral treatments (versus medication), more NR (30.6%) tended to report that they had utilized therapy or counseling for mental or emotional health during the past 12 months at baseline compared to UR did (15.6%;  $\chi^2(1, N = 94) = 2.97, p = .09$ ). At follow up, 13.56% of NR and 18.18% UR reported utilization of therapy or counseling during their first semester of college ( $\chi^2(1, N = 114) = .46, p = .50$ ). Lastly, marginally more UR reported no utilization of any social support at follow up (61.82% UR versus 44.07% NR;  $\chi^2(1, N = 114) = 3.60, p = .06$ ; Table 6). Interestingly, significantly more NR reported reliance on their significant other during follow up (20.34% NR versus 5.45% UR;  $\chi^2(1, N = 114) = 5.52, p < .05$ ; Table 6).

*Underrepresented status and perceived barriers to mental healthcare use*

Perceived need of mental health resources is summarized in Table 7. No significant difference in perceived need was observed between the groups during baseline ( $t(118) = -.17, p = .86$ ) and follow up ( $t(112) = -.66, p = .51$ ). Over the course of the semester, the perceived need for mental health resources significantly decreased for both groups ( $F(1, 111) = 13.18, p < .001$ ; Figure 6), but no group moderation was found ( $F(1, 111) = .08, p = .78$ ).

No significant differences in knowledge of resources were shown between the two groups during baseline ( $t(118) = .02, p = .99$ ), while non-significant trend of higher knowledge among NR was found ( $t(112) = 1.82, p = .07$ ). The mean scores are summarized in Table 8. No significant changes between baseline and follow up ( $F(1, 111) = .10, p = .76$ ; Figure 7) and group moderation ( $F(1, 111) = 2.16, p = .15$ ) were observed.

No significant differences in perceived stigma of others towards mental health resources was observed between the groups during baseline ( $t(118) = -1.08, p = .28$ ) and follow up ( $t(112)$

= .003,  $p = .99$ ). Furthermore, no significant differences were found in reported participants' own stigma during baseline ( $t(112) = .98, p = .95$ ) and follow up ( $t(112) = .98, p = .33$ ) as well. Perception of others' stigma ( $F(1, 111) = 3.66, p = .06$ ; Figure 8) decreased for both groups, but no group moderation was found ( $F(1, 111) = 1.37, p = .24$ ). No significant changes between time points were observed for self-reported, own stigma ( $F(1, 111) = 0.43, p = .51$ ; Figure 9); no significant group moderation was found ( $F(1, 111) = 0.90, p = .35$ ) as well. Table 9 summarizes mean scores of stigma against mental health resources for both groups and time points.

There was no significant difference in the two groups' ratings of helpfulness of their support during baseline ( $t(20) = -.36, p = .72$ ; Table 9) and at follow up ( $t(52) = .73, p = .47$ ). No significant changes between baseline and follow up ( $F(1, 15) = .02, p = .89$ ; Figure 10) and group moderation ( $F(1, 15) = .25, p = .63$ ) were observed.

Satisfaction ratings on different aspects of therapy or counseling that were utilized during the first semester are summarized in Table 10. No significant group difference was found for all aspects: convenient hours ( $t(14) = -1.37, p = .19$ ), location ( $t(14) = .61, p = .55$ ), quality of treatment ( $t(14) = .67, p = .51$ ), respect for privacy ( $t(14) = -.17, p = .87$ ), and availability to schedule ( $t(14) = -.74, p = .47$ ).

## Discussion

The current study aimed to compare rates of mental distress, as well as attitudes toward and actual utilization of mental health resources, among underrepresented and non-underrepresented freshmen transitioning to college. Results indicated that UR showed a trend of higher levels of stress upon entering college and significantly higher depressive symptoms at the end of the first semester. For both UR and NR, levels of mental distress increased significantly during their first semester at college. However, both groups reported lower perceived need for mental health resources at the end of the

semester, relative to the start of college, and they also reported marginal decreases in perceptions of others' stigma toward mental health resources. While UR were equally likely as NR to report planning to utilize counseling center services at baseline, UR were less likely to report the same plan at follow up. Instead, a trend of higher preference for support groups among UR, in comparison to NR, was observed at follow up. It is not clear whether the students selected this option for counseling groups or student-led interest and support groups. As for the actual resource utilization, UR had a trend of less utilization of therapy or counseling services in the past year, compared to NR, at baseline. At follow up, NR relied more on their significant other than UR, and UR reported that they received help from no one at a marginally higher rate than NR.

UR entered college with similar rates of most mental health diagnoses to NR. For both groups, depression and anxiety were the most diagnosed mental disorders. Other studies also identify anxiety disorders (11.9% of college students; Kessler et al., 2007) and major depression (7-9%; Kessler et al., 2007; Eisenberg, Hunt, and Speer, 2013) as the most prevalent psychiatric disorders in college students. While none of the NR replied that they did not know if they have any past psychiatric diagnosis, 5.17% of UR did. This uncertainty could reflect the lack of access to mental health resources and diagnosis for underrepresented populations.

Perceived stress was marginally higher among the UR during baseline and the scores of both groups significantly increased throughout the semester. In addition, depressive symptoms at the follow up were significantly higher for UR, and depressive symptoms also significantly increased for both groups throughout the semester. These findings are consistent with past studies that show increased stress and depressive symptoms among underrepresented students (Greer & Chwalisz, 2007; Jenkins et al., 2013), as well as a general increasing trend of depression in college students (Alfeld-Liro, & Sigelman, 1998). During the semi-structured interview, a UR student shared a unique stressor she

encountered in college as an ethnic minority, which added challenges during her college transition and contributed to feelings of stress.

*“I am a Hispanic student...and I haven’t seen that many Hispanics, which is what I am used to. One of my challenges, my struggles was understanding other people. Because... the majority of people here are white and ... I was never really used to that. Because my [high] school ... the majority of people were Hispanic and black people so it was a big transition...I just felt really uncomfortable and out of place. But like I just let time do its thing and I am actually like okay with everyone now. I feel comfortable.”*

The participant’s response is consistent with past studies that found mental and emotional distress that are associated with college students of color, stereotype threat and prejudice (Aronson, Fried, & Good, 2002; Steele, 1997). Solo statuses of minority students can contribute to lowered academic performance, as well as increased awareness of one's identities. The self-awareness could add pressure on these students, with the fear that their performance will be generalized and stereotyped for the entire group that they “represent” (Thompson and Sekaquaptewa, 2002). Contrasting to other results, there were no significant differences in levels of worry between the groups and over time. This finding is inconsistent with other studies that have found higher levels of anxiety and worry among underrepresented college students (Aronson, Fried, & Good, 2002; Steele, 1997).

The top three choices of social support that both NR and UR preferred to utilize to address emotional and mental distress were friends, family and professional clinicians, for both time points. For emotional distress that is affecting their academics, both NR and UR at baseline anticipated being most likely to utilize the counseling center or approach a professor from a class, when given a list of potential

academic personnel they could speak with. At follow up, however, UR were less likely to report planning to utilize counseling center services compared to NR. For general social support, more UR reported at follow up planning to utilize support groups than NR did. During the semi-structured interview, one underrepresented participant explicitly discussed this hesitation about seeking help from professionals on campus, instead preferring to receive help from friends and family, explaining,

*“I don’t exactly know what it is and who they are....so maybe I will not feel comfortable about seeking help from them.”*

In terms of actual utilization, UR were less likely to have used at least one type of professional mental health service prior to entering college, and were less likely to have utilized therapy or counseling during the past 12 months before entering college. Furthermore, marginally more UR reported not having received any social support at follow up. This supports findings of underutilization of mental health resources among underrepresented students (Stebbleton, Soria, & Huesman, 2014). However, UR were equally likely to utilize professional mental health services during the first semester of college, compared to NR. Equal utilization of professional resources by UR may be due to higher rates of emotional distress among UR, or free services on campus that alleviate financial barriers. However, it is also important to note that at both baseline and follow up, both NR and UR in our sample reported higher usage of counseling services compared to that estimated for a national college sample (10%; Rosenthal & Wilson, 2008). This may represent 1) a higher level of mental distress, 2) higher access, and/or 3) fewer barriers to the resources. In addition, it will be important for future studies to explore rates of healthcare utilization beyond the first semester, as these trends may change over time.

Interestingly, NR reported higher reliance on their significant others compared to UR at follow up. It is unclear exactly why this might be. Perhaps NR are more likely to have a significant other to talk to during college, due to greater social belonging on campus. It is also possible that this result reflects

the different type of stressors and barriers that are unique to NR. For example, Luthar and Latendresse (2005) found that upper class children experience substance use, anxiety, and depression at higher levels, in part due to excessive pressure to achieve and isolation from caregivers. Due to high expectations from family, NR might face their own unique sources of stigma against resource utilization, and non-underrepresented students may therefore seek support from romantic partners, with whom they have already-established a strong emotional bond and can be vulnerable with. For example, during the semi-structured interview, one NR student shared his perception of the social stigma towards mental illnesses as a White male student.

*“... social stigmas...where you have to act or put on a show...there’s a stigma that you don’t want your friends to see that. It’s easier if you have a friend who opened up to you...you feel more comfortable opening up to them...being like a white male...I get that technically gives me like an up or whatever...there’s less blocks I guess or discrimination and stuff that could affect other groups more than myself... [But] I feel like there’s an informal barrier against...a man being white. You’re supposed to...have everything together since...you institutionally...you’ve been technically benefited the most...so I guess if you’ve been privileged, you shouldn’t have problems.”*

Past studies have identified multiple barriers to resource utilization in underrepresented college students, including a lack of time, financial constraints, a lack of perceived need for help, privacy concerns, being unaware of available resources, stigma, and skepticism about treatments (Eisenberg, Golberstein, & Hunt, 2009). In this study, no significant difference in knowledge of resources and helpfulness of utilized resources were shown over time, and between the two groups at either baseline or

follow up. Meanwhile, the perceived need for mental health resources decreased significantly in both groups, despite the significant rise of depressive symptoms and perceived stress over the course of the semester. Furthermore, perception of others' stigma toward such resources marginally decreased for both groups over the semester. The lack of perceived need therefore may be the key barrier to utilizing mental health resources for freshmen across both groups in this sample. An NR described how low stigma and high mental distress could coexist:

*"I think peer wise, people know it's a problem...I think people are generally frustrated that it's not being fixed – not necessarily in college but as a country. Because society and...professors, they see it and most will talk about it. Like remember to do things... like sleep and take care of yourself... but I don't really see them trying to change anything. Like they'll mention, but they'll assign as much work and as much pressure. So it's like a dichotomous relationship."*

This study has several limitations which should be acknowledged. First, the study was conducted at a single, nationally-recognized university that is relatively small and located in a rural setting. As such, findings cannot be generalized to other college settings, and further research is needed to determine how the institutional setting influences the first-year experiences of underrepresented students. For example, past research has pointed toward fewer emotional difficulties for racial/ethnic minority students when transitioning to a historically black institution (Allen, 1992; Turner, 1994; Feagin, Vera, and Imani, 1996).

In addition, the majority of underrepresented students in the current sample were females, and female young adults tend to report higher rates of many common emotional health problems like anxiety and depression (Seedat et al., 2009). Demographically, minority males are underrepresented on college



campuses, as first-generation and/or low-income college students tend to be female (Engle, 2007; Engle and O'Brien, 2007). However, this is a crucial area for future research, given the potent stigma around mental illness and mental health treatment among minority males (Eisenberg et al., 2009).

Our sample also excluded non-traditional students who were not recent high school graduates, in part due to the typical student population at this college, and in part to keep the age of the sample relatively consistent. In future studies, non-traditional students should also be studied as a part of the underrepresented students, as many studies show that underrepresented students tend to be older (Nunez, 1998), and/or to have transferred to four-year college after some time spent in community college (D'Amico et al., 2014).

Because the study was conducted only during the first semester of the freshmen students, these findings are not generalizable to all underrepresented and non-underrepresented students. Past studies have demonstrated that upperclassmen are the most stressed, anxious, and depressed when compared with freshman and sophomore (Bostanci et al., 2005; Naushad et al., 2014; Beiter et al., 2015). Therefore, longer longitudinal studies should examine resource attitudes, barriers, and utilization among students throughout their college career.

Furthermore, underrepresented status was determined by self-reported race, family income, and first-generation status on a recruitment screener. However, we noted that these identities were somewhat fluid for some students – in particular, a few students reported additional or different racial identities at baseline compared to follow up surveys. Self-perception of racial identity, especially among biracial students, might be an important aspect of student wellness that is difficult to capture using a binary construct, and should be further considered in future studies.

Lastly, the follow up survey was administered during the last week of classes, when many assignments are due. Especially with their upcoming final exams, some students may have been

experiencing acutely elevated levels of distress that were not indicative of general trends across the semester. To address this issue, future studies utilizing a more sophisticated longitudinal sampling design are needed.

Despite these limitations, this study identified important mental health trends that could help to identify predictors of risk for underrepresented students transitioning to college at predominantly white, upper-middle class universities, as well as to develop efficient and effective emotional support for these students. Future research should aim to increase generalizability by exploring these questions within various higher education settings, including community colleges, universities in suburban and urban settings, and larger universities. In addition, studies should seek to recruit larger samples with increased ethnic and gender diversity among underrepresented students. Future analysis should also compare the influence of multiple, intersecting social identities including gender, low-income, first-generation, immigrant, and ethnic minority statuses in order to isolate the key mechanisms of attrition among specific subgroups of UR. For example, although sample size was not sufficient to fully explore these issues in the current sample, one aspect of social identity, low-income status, appeared to be most consistently correlated (all  $r$ 's  $> \pm 0.30$ ; all  $p$ 's  $< 0.05$ ) with perceived stress and depressive symptoms at follow up. Moreover, issues of income and social status came up in the interviews. The quote below illustrates how perceived income-status seemed to affect even NR:

*“There is generally a lot of diversity. But I feel like there could be more in terms of...ethnics, socioeconomic backgrounds and stuff. Because it's pretty clear...a lot of people who are like “Oh yea, I just got back from Australia” or either like “I just had my second mission trip to Tahiti”... [attend this university] and I've literally never been outside of the United*

*States...so I feel like that's kind of weird to see people having these crazy experiences that you can only have with lots of money."*

Yet, there is a lack of studies exploring low-income students and emotional well-being, while ethnicity and mental health resource utilization are relatively well-studied (Constantine, 2000; Sheu & Sedlacek, 2004). Thus, research that examines the complex interplay of social factors, including perceived socioeconomic status and family income, that influence mental health, stigma, and resource utilization among college students is crucial in developing successful interventions to address mental distress experienced by UR, as well as NR.

Overall, the present results have important implications for understanding and addressing rates of emotional distress in both UR and NR, a factor which could lead to increased risk for college dropout, as well as a broader range of academic difficulties in this population. Furthermore, identification of key mechanisms of attrition among underrepresented students would allow for the development of targeted interventions to promote equal educational opportunities.

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**Tables**

*Table 1*

Demographics		NR (N = 61)		UR (N = 58)	
		Frequency	Percent	Frequency	Percent
Gender	Male	28	45.2	12	20.3
	Female	34	54.8	47	79.7
	Total	62	100.0	59	100.0
Ethnicity	White	57	91.9	6	10.2
	African American			20	33.9
	Asian			11	18.6
	Latino			12	20.3
	Other	5	8.1	10	16.9
	Total	62	100.0	59	100.0
Immigrant	Immigrant			12	20.3
	U.S.-Born	61	98.4	46	78.0
	Total			58	98.3
	Missing	1	1.6	1	1.7
First-generation	1 <sup>st</sup> -generation			20	33.9
	Continuing-generation	62	100.0	39	66.1
	Total			59	100.0
Low Income	Not Low-income	62	100.0	36	61.0
	Low-income			23	39.0
	Total			59	100.0

Table 2

Past Psychiatric Diagnosis Reported at Baseline

Diagnosis	NR (N = 61)		UR (N = 58)	
	Count (n)	%	Count (n)	%
<b>Depression</b> (e.g., major depressive disorder, bipolar/manic depression, dysthymia, cyclothymia)	7	11.48%	7	12.07%
<b>Anxiety</b> (e.g., generalized anxiety disorder, panic disorder, agoraphobia, specific phobia (e.g., claustrophobia, arachnophobia, etc.), social phobia, obsessive-compulsive disorder, acute stress disorder, post-traumatic stress disorder)	14	22.95%	8	13.79%
<b>Attention disorder or learning disability</b> (e.g., attention deficit disorder (ADD), attention deficit hyperactivity disorder (ADHD), learning disability)	2	3.28%	0	0.00%
<b>Eating disorder</b> (e.g., anorexia nervosa, bulimia nervosa, binge-eating disorder)	1	1.64%	1	1.72%
<b>Psychosis</b> (e.g., schizophrenia, schizoaffective disorder, brief psychotic disorder, delusional disorder, schizophreniform disorder, Shared psychotic disorder)	0	0.00%	0	0.00%
<b>Personality disorder</b> (e.g., antisocial, avoidant, borderline, borderline, histrionic, narcissistic, obsessive-compulsive, paranoid, schizoid, schizotypal)	1	1.64%	0	0.00%
<b>Substance abuse disorder</b> (e.g., alcohol abuse, abuse of other drugs)	0	0.00%	0	0.00%
<b>At least one of above</b>	18	29.51%	11	18.97%

Table 3

*Psychosocial Functioning Questionnaires*

		NR						UR					
		<i>N</i>	Range	Min	Max	Mean	<i>SD</i>	<i>N</i>	Range	Min	Max	Mean	<i>SD</i>
B a s e l i n e	Perceived Stress	62	33	3	36	16.37	6.30	59	29	4	33	18.69	7.09
	Depression	59	48	0	48	12.39	8.96	57	46	0	46	13.88	11.15
	Worry	58	50	26	76	50.79	13.24	55	55	24	79	54.29	15.72
F o l l o w u p	Perceived Stress	58	23	17	40	26.98	5.59	54	29	14	43	28.61	6.90
	Depression	58	47	1	48	12.57	10.97	53	54	0	54	17.51	13.00
	Worry	58	58	19	77	49.53	13.21	53	54	26	80	52.85	15.65

Table 4

*Preferred Type of Social Support to Utilize if Experiencing Serious Emotional distress*

	Baseline			Follow up		
	% of NR (N = 62)	% of UR (N = 59)	Chi-Square	% of NR (N = 59)	% of UR (N = 55)	Chi-Square
Professional clinician	56.45%	45.76%	$\chi^2(1, N = 121) = 1.38, p = .24$	55.93%	45.45%	$\chi^2(1, N = 114) = 1.25, p = .26$
Friend	77.42%	71.19%	$\chi^2(1, N = 121) = .62, p = .43$	77.97%	78.18%	$\chi^2(1, N = 114) = .001, p = .98$
Significant other	35.48%	23.73%	$\chi^2(1, N = 121) = 2.00, p = .16$	42.37%	29.09%	$\chi^2(1, N = 114) = 2.18, p = .14$
Family member	70.97%	62.71%	$\chi^2(1, N = 121) = .93, p = .34$	69.49%	63.64%	$\chi^2(1, N = 114) = .44, p = .51$
Religious contact	9.68%	15.25%	$\chi^2(1, N = 121) = .87, p = .35$	8.47%	14.55%	$\chi^2(1, N = 114) = 1.04, p = .31$
Support group	3.23%	3.39%	$\chi^2(1, N = 121) = .003, p = .96$	1.69%	9.09%	$\chi^2(1, N = 114) = 3.12, p = .08$
Other source	4.84%	6.78%	$\chi^2(1, N = 121) = .21, p = .65$	0.00%	1.82%	$\chi^2(1, N = 114) = 1.08, p = .30$
No one	4.84%	8.47%	$\chi^2(1, N = 121) = .65, p = .42$	5.08%	9.09%	$\chi^2(1, N = 114) = .70, p = .40$

Table 5

*Preferred Type of Resource at William and Mary to Utilize if Experiencing a Mental Health Problem that Affects Academics*

	Baseline			Follow up		
	% of NR (N = 62)	% of UR (N = 59)	Chi-Square	% of NR (N = 59)	% of UR (N = 55)	Chi-Square
Professor	29.03%	16.95%	$\chi^2(1, N = 121) = 2.48, p = .12$	20.34%	25.45%	$\chi^2(1, N = 114) = .42, p = .52$
Academic advisor	11.29%	15.25%	$\chi^2(1, N = 121) = .41, p = .52$	13.56%	23.64%	$\chi^2(1, N = 114) = 1.92, p = .17$
Advisor for a group	12.90%	5.08%	$\chi^2(1, N = 121) = 2.24, p = .14$	8.47%	3.64%	$\chi^2(1, N = 114) = 1.16, p = .28$
Research mentor	1.61%	0.00%	$\chi^2(1, N = 121) = .96, p = .33$	0.00%	3.64%	$\chi^2(1, N = 114) = 2.18, p = .14$
Student services staff	16.13%	15.25%	$\chi^2(1, N = 121) = .02, p = .90$	11.86%	9.09%	$\chi^2(1, N = 114) = .23, p = .63$
Dean of Students	11.29%	6.78%	$\chi^2(1, N = 121) = .74, p = .39$	6.78%	9.09%	$\chi^2(1, N = 114) = .21, p = .65$
Counseling Center	88.71%	83.05%	$\chi^2(1, N = 121) = .80, p = .37$	74.58%	52.73%	$\chi^2(1, N = 114) = 5.90, p < .05$
No one	6.45%	11.86%	$\chi^2(1, N = 121) = 1.07, p = .30$	18.64%	29.09%	$\chi^2(1, N = 114) = 1.72, p = .19$
Other	11.29%	8.47%	$\chi^2(1, N = 121) = .27, p = .60$	3.39%	9.09%	$\chi^2(1, N = 114) = 1.61, p = .21$

Table 6

*Utilized Resources during the First Semester*

	% of NR ( <i>N</i> = 59)	% of UR ( <i>N</i> = 55)	Chi-Square
Significant other	20.34%	5.45%	$\chi^2(1, N = 114) = 5.52, p < .05$
Family	38.98%	27.27%	$\chi^2(1, N = 114) = .46, p = .50$
Teacher	6.78%	7.27%	$\chi^2(1, N = 114) = .01, p = .92$
Religious leader	5.08%	1.82%	$\chi^2(1, N = 114) = .90, p = .34$
Support group	3.39%	0.00%	$\chi^2(1, N = 114) = 1.90, p = .17$
Other source	5.08%	3.64%	$\chi^2(1, N = 114) = .14, p = .71$
No one	44.07%	61.82%	$\chi^2(1, N = 114) = 3.60, p = .06$

Table 7

*Perceived Need for Emotional and Mental Health*

	NR						UR					
	<i>N</i>	Range	Min	Max	Mean	<i>SD</i>	<i>N</i>	Range	Min	Max	Mean	<i>SD</i>
Baseline	62	5	1	6	3.18	2.01	58	5	1	6	3.24	2.05
Follow up	59	5	1	6	2.61	1.77	55	5	1	6	2.84	1.88



Table 8

*Knowledge of Resources for Emotional and Mental Health*

	NR						UR					
	<i>N</i>	Range	Min	Max	Mean	<i>SD</i>	<i>N</i>	Range	Min	Max	Mean	<i>SD</i>
Baseline	62	5	1	6	4.69	1.14	58	5	1	6	4.69	1.40
Follow up	59	5	1	6	4.83	1.12	55	5	1	6	4.42	1.30

Table 9

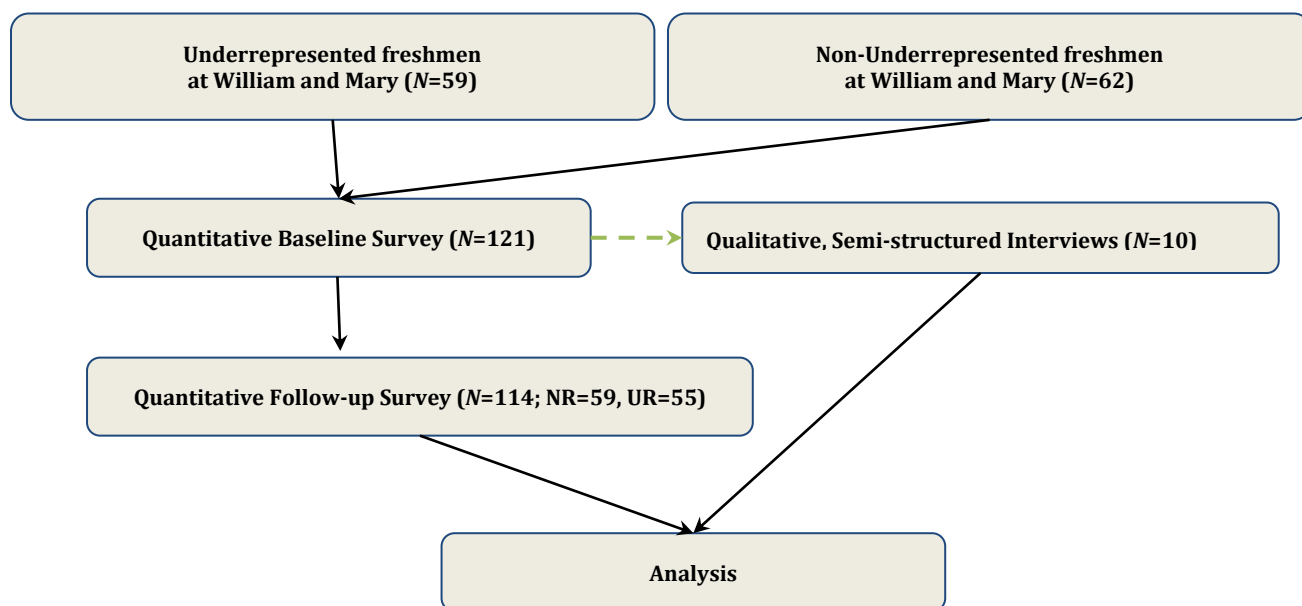
*Resource Stigma and Helpfulness*

		NR						UR					
		<i>N</i>	Range	Min	Max	Mean	<i>SD</i>	<i>N</i>	Range	Min	Max	Mean	<i>SD</i>
Baseline	Most people think less of a person who has received mental health treatment.	62	5	1	6	3.29	1.37	58	5	1	6	3.57	1.46
	I would think less of a person who has received mental health treatment.	62	5	1	6	1.37	.91	58	3	1	4	1.36	.72
	Helpfulness of social support	15	2	2	4	3.00	.76	7	3	1	4	3.14	1.07
Follow-up	Most people think less of a person who has received mental health treatment.	59	5	1	6	3.24	1.45	55	5	1	6	3.24	1.39
	I would think less of a person who has received mental health treatment.	59	3	1	4	1.49	.88	55	3	1	4	1.35	.70
	Helpfulness of social support	33	3	1	4	2.85	0.80	21	3	1	4	2.67	1.02

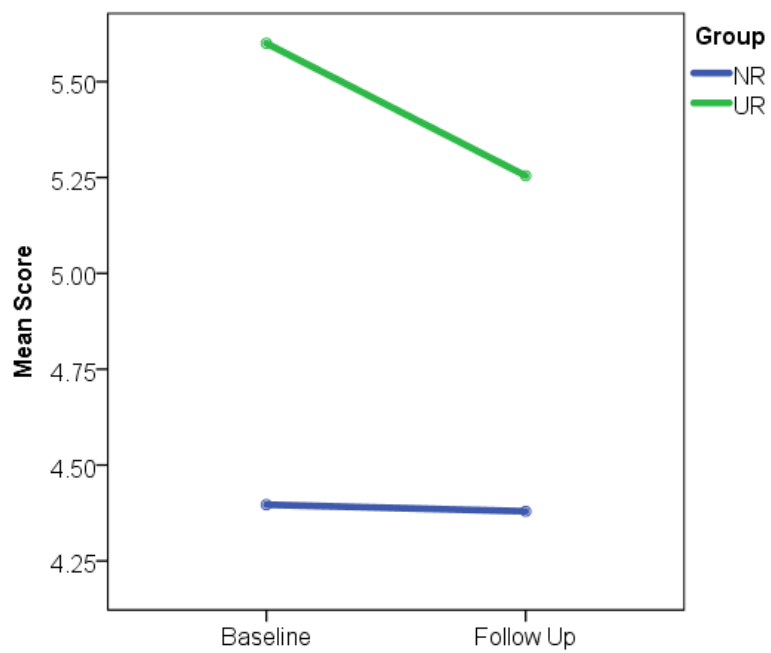
Table 10

*Satisfaction of the Past Use of Counseling and Therapy at Follow Up*

	NR						UR					
	<i>N</i>	Range	Min	Max	Mean	<i>SD</i>	<i>N</i>	Range	Min	Max	Mean	<i>SD</i>
Convenient hours	8	4	1	5	3.50	1.69	8	4	2	6	4.50	1.20
Location	8	5	1	6	4.50	1.60	8	5	1	6	4.00	1.69
Quality of therapists/counselors	8	5	1	6	4.50	1.60	8	5	1	6	3.88	2.10
Respect for your privacy concerns	8	5	1	6	4.75	1.75	8	3	3	6	4.88	1.13
Ability to schedule appointments without long delays	8	5	1	6	3.13	2.23	8	5	1	6	3.88	1.81

**Figures**

*Figure 1. Study design*



*Figure 2.* Perceived socioeconomic status had no significant difference between groups and over time.

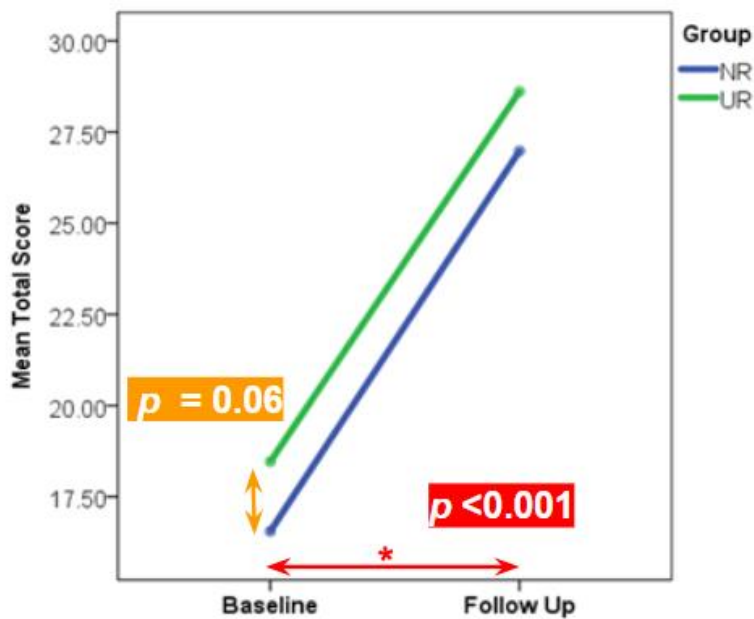


Figure 3. Perceived stress significantly increased for both groups throughout the semester ( $p < 0.001$ ).

No significant moderation of group status on perceived stress was found. There was a marginally higher level of stress among UR during baseline compared to NR ( $p = 0.06$ ).

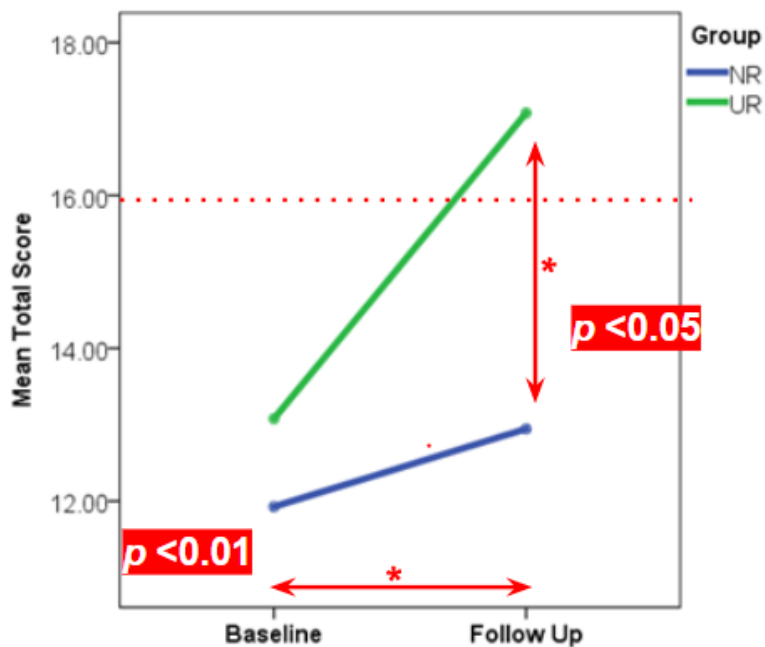
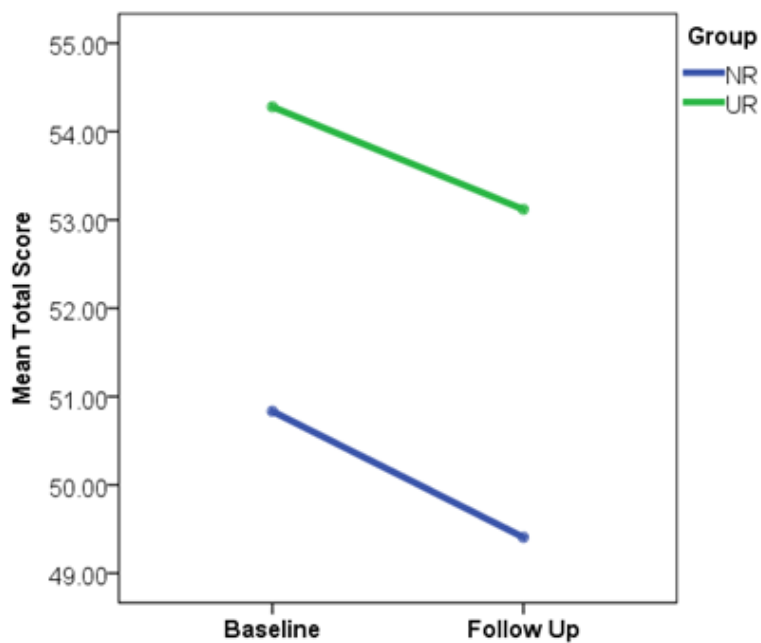


Figure 4. Depressive symptoms significantly increased for both groups throughout the semester ( $p < 0.01$ ). At follow up, UR had significantly higher level of depressive symptoms compared to NR ( $p < 0.05$ ). No significant moderation was found. CES-D score of  $\geq 16$  is used as cutoff score to identify individuals at risk for clinical depression, and the mean score of UR exceeded 16 at follow up (Lewinsohn, 1997).



*Figure 5.* No significant change of scores in Worry were observed over the semester nor any significant moderation of the group status. No significant differences between the groups were observed as well. A total score of 16-39 indicates low worry, 40-59 moderate worry, and 60-80 high worry (Meyer et al, 1990). Both groups experienced moderate worry during both time points.



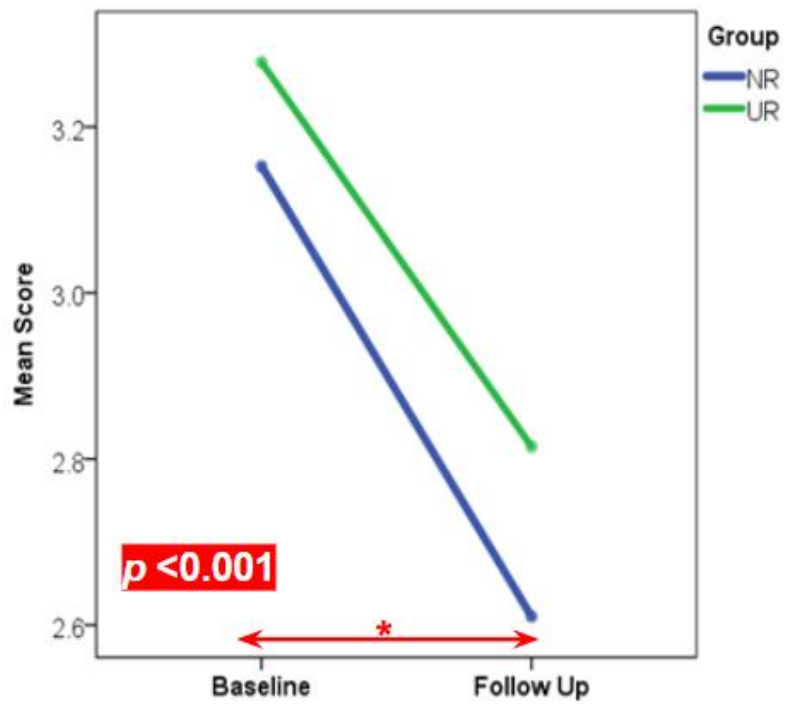
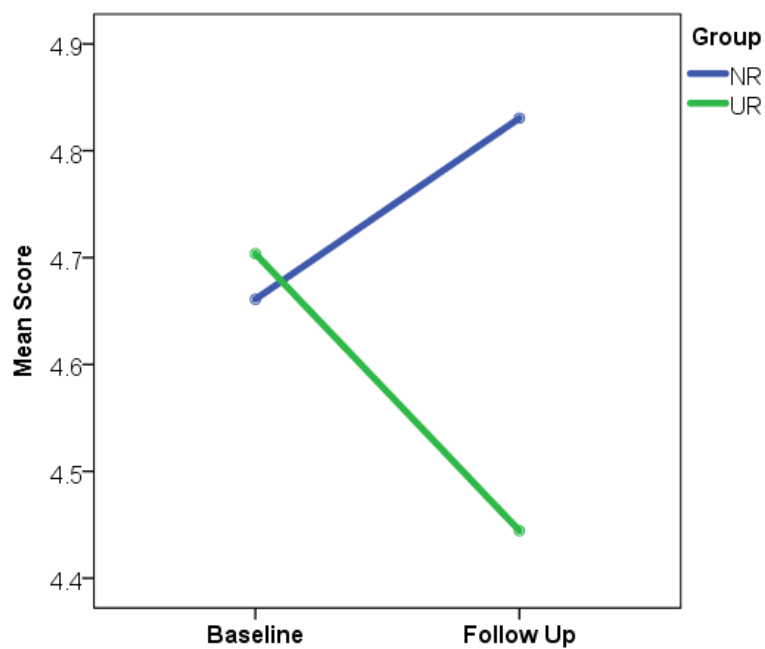


Figure 6. Perceived need for emotional and mental health significantly decreased for both groups over the semester. No other significant differences were observed.



*Figure 7.* No significant differences in knowledge of resources for emotional and mental health were observed between groups and over time. No significant interactions were found.

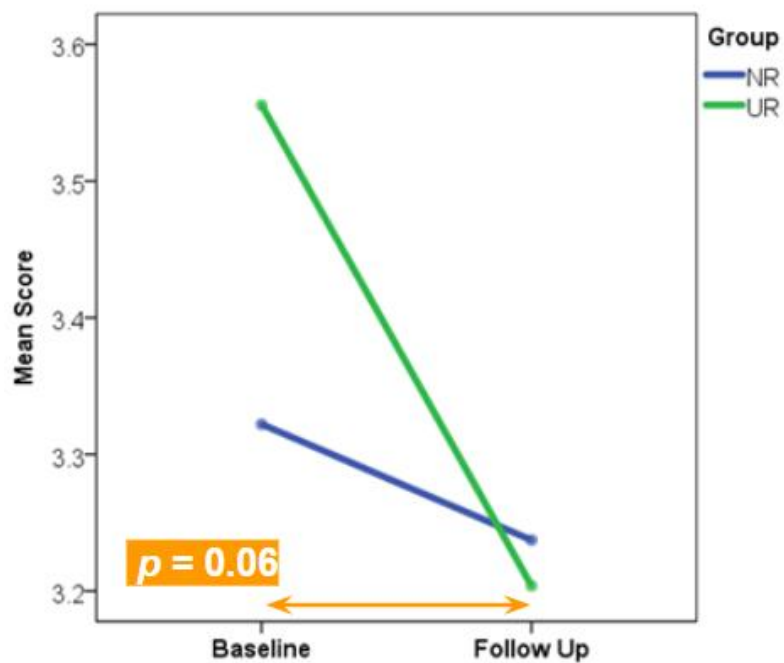
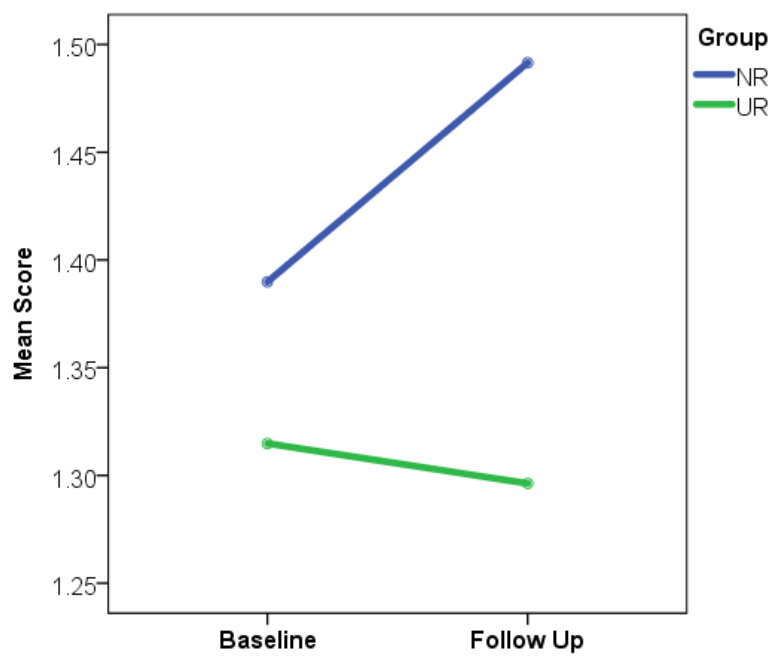
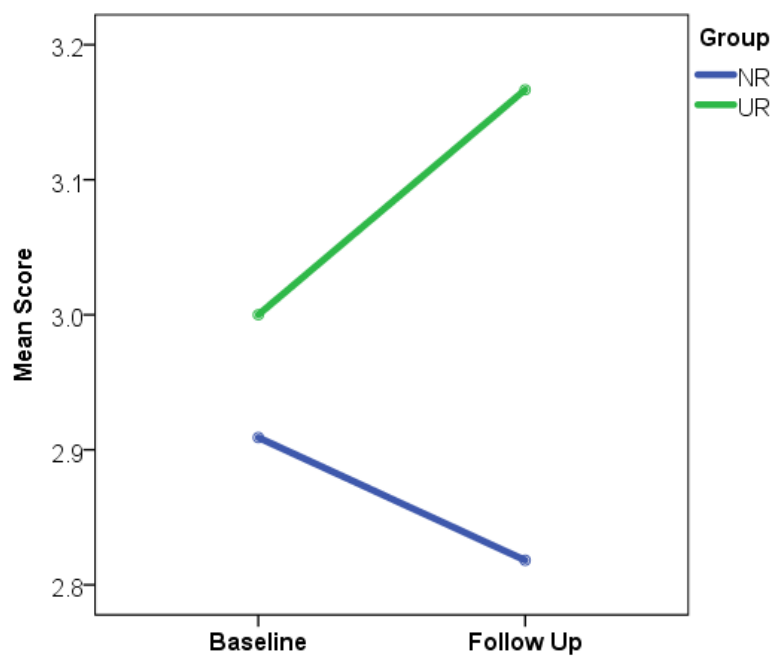


Figure 8. Perceived stigma of others against mental health resources decreased marginally for both groups over the semester ( $p = 0.06$ ). No significant differences or interactions were found.



*Figure 9.* No significant differences for self-reported own stigma against mental health resources were observed between groups and over time. No significant interactions were observed.



*Figure 10.* No significant differences for helpfulness of utilized social support were observed between groups and over time. No significant interactions were observed.